

WHAT IS CLAIMED IS:

1. An electro-optic device, comprising:
 - a recess/projection forming layer having asperities formed in a dispersed condition; a multiplicity of pixels formed in a matrix pattern on a substrate for holding an electro-optic material; and
 - a light reflecting film formed above said recess/projection forming layer being disposed in each of the multiplicity of pixels formed in a matrix pattern on a substrate for holding an electro-optic material, and said recess/projection forming layer forming a recess/projection pattern to scatter light on a surface of said light reflecting film,
 - the multiplicity of pixels being grouped into plural units each including a plurality of pixels, the recess/projection pattern being formed to provide a different pattern for each pixel, at least in each of the units and the recess/projection pattern for the pixel at the same position in each unit differs among the units, and
 - variations in planar shapes, planar sizes, or planar position distribution of projections or recesses constituting said asperities being controlled among the pixels.
2. An electro-optic device, comprising:
 - a recess/projection forming layer having asperities formed in a dispersed condition; a multiplicity of pixels formed in a matrix pattern on a substrate for holding an electro-optic material;
 - a light reflecting film formed above said recess/projection forming layer being disposed in each of the multiplicity of pixels formed in a matrix pattern on a substrate for holding an electro-optic material; and
 - said recess/projection forming layer forming a recess/projection pattern to scatter light on a surface of said light reflecting film,
 - the recess/projection pattern being formed to provide a different pattern for each pixel, and
 - variations in planar shapes, planar sizes, or planar position distribution of projections or recesses constituting said asperities are controlled among the pixels.
3. The electro-optic device according to Claim 1, the projections or the recesses constituting said asperities having a circular or polygonal plan shape.
4. The electro-optic device according to Claim 1, when viewing said electro-optic device in a direction inclined 10 degrees to 30 degrees from the direction vertical to said substrate, a ratio of standard deviation/average value of reflection luminance being within 10% among the pixels.

5. The electro-optic device according to Claim 1, the projections or the recesses constituting said asperities being formed in plural kinds having different planar sizes in one pixel.

6. The electro-optic device according to Claim 5, the projections or the recesses constituting said asperities being formed such that the number of the projections or the recesses having the same planar size in one pixel being equal among the pixels.

7. The electro-optic device according to Claim 1, an area in which the recess/projection pattern being formed being divided into small planes and an existence rate of small planes having respective angles, which are formed by the small planes relative to the substrate plane, in one pixel being represented in the form of a histogram, a ratio of standard deviation/average value for a total of the existence rates of the small planes, in each of which said angle being in the range of 3° to 10° , being within 10% among the pixels.

8. The electro-optic device according to Claim 1, a ratio of standard deviation/average value for a total area of the projections or the recesses constituting said asperities being within 5% among the pixels.

9. The electro-optic device according to Claim 1, a ratio of standard deviation/average value for a total area of those of the projections or the recesses constituting said asperities, which are present in a pixel area excepting an area where a black matrix is formed, being within 5% among the pixels.

10. The electro-optic device according to Claim 1, when Delaunay triangles are drawn based on respective center position coordinates of the projections or the recesses constituting said asperities, a ratio of standard deviation/average value of lengths of Delaunay lines being not larger than 35%.

11. The electro-optic device according to Claim 1, a total area of those of the projections or the recesses constituting said asperities, which are cut halfway at ends of each pixel, being equal to integer times normal areas of those recesses or projections.

12. The electro-optic device according to Claim 1, an overlap rate of the projections or the recesses constituting said asperities among the pixels being not smaller than 50%.

13. The electro-optic device according to Claim 1, an asperity forming pattern larger than one pixel being set as a reference pattern, and positions of the projections and the recesses constituting said asperities for each of the pixels being decided using a recess/projection pattern which is obtained by rotating the reference pattern about a predetermined position.

14. The electro-optic device according to Claim 1, an asperity forming pattern larger than a total area of the $m \times n$ number of pixels being set as a reference pattern, and positions of the projections and recesses constituting said asperities for each of the pixels being decided using a recess/projection pattern for the $m \times n$ number of pixels, obtained by rotating the reference pattern about a predetermined position.

15. The electro-optic device according to Claim 13, different recess/projection patterns being formed in the respective pixels by moving the center of rotation of the reference pattern while the reference pattern is rotated.

16. The electro-optic device according to Claim 13, the center of rotation of the reference pattern being set to a position deviated from the projections or the recesses constituting said asperities.

17. The electro-optic device according to Claim 13, said light reflecting film being electrically connected to a lower or upper conductive layer through a contact hole and being formed except for said contact hole, and

the center of rotation of the reference pattern being set to a position overlapping with said contact hole.

18. The electro-optic device according to Claim 13, said light reflecting film having a light passing window formed therein to display an image in a transmission mode, and the center of rotation of the reference pattern is set in said light passing window.

19. The electro-optic device according to Claim 1, a rectangular area made up of recess/projection patterns having continuity in patterns at respective left and right ends and continuity in patterns at respective upper and lower ends being set as a basic pattern, and positions of the projections and the recesses constituting said asperities for the respective pixels being decided using a plurality of recess/projection patterns which are obtained by translating a region to cut out each of the recess/projection patterns from said basic pattern up, down, rightward or leftward while maintaining continuity in patterns at ends of said cutting-out region.

20. The electro-optic device according to Claim 19, said cutting-out region covering several pixels.

21. The electro-optic device according to Claim 19, said cutting-out region covering one pixel, and a size of said cutting-out region corresponding to an aperture area of the pixel excepting an area in which a light shield film is formed.

22. The electro-optic device according to Claim 1, said substrate being prepared as a first substrate, a second substrate being arranged in an opposed relation to said first substrate, and a liquid crystal being held as said electro-optic material between both said substrates.

23. An electronic apparatus including, as a display, the electro-optic device according to Claim 1.